communication system. US Patent No. **5,108,052** is similar to the present invention in that it also has a vehicle width for one passenger. However, the present invention is patentably distinguishable from the prior art.

First, the present invention has a track comprising of a pair of side rails and a central rail. Malewicki teaches a system has a track of only one central rail, much like a small version of monorail. The applicant would like to point out that component **115** in the Malewicki patent is a part of the vehicle, not a side rail.

Second, the relation between the vehicle and the track is different. In the present invention, the vehicle is supported by the wheels engaged on the side rails, and wheels engaged on the central rail provide the guidance to center the vehicle on the track. In the Malewicki system, the wheels engaged on the top surface of the central rail support the vehicle. The vehicle is the present invention is more stable by supporting by wheels on the both sides instead of supporting at the central line in the prior art. In the Malewicki patent, the vehicle is locked to the inverted T-shape of the track to prevent derailing. It is not clear how the vehicle is guided or how the side component **115** of the vehicle is used in the prior art (Presumably it may prevent the vehicle from tipping sideway).

Third, the central rail of the present invention has movable sections for switching the direction of the vehicles. It creates an exclusive condition for vehicles at a switching point. At a merging point, only vehicles from one direction can enter, preventing collision. At a diverging point, vehicles can only take one direction at a certain switch position. This can be significant when the vehicles form a train to travel together, and a mismatch in switching of different vehicles will cause an accident. The Malewicki patent does not specify the track switching technology (**col.6, lines 1-18**) for merging and diverging, just suitable and available technologies. In conventional highway mode, switching is activated at the vehicle level and the track is fixed. In conventional railway mode, both rails are switched.

Fourth, the present invention has a wayside control system **28**. It has sensors **96** and **98** to read the vehicle identification information. **It will make switching action.** The identification and scanning devices **(ISD)** in the Malewicki patent can

mean either a bar code or a scanner to read the bar code (bar code is used as an example to simplify the discussion). Putting the two related two paragraphs (**col. 5, lines 31 to 59**) in plain English, it has scanners on the vehicle to read bar code fixed on the track with location information. This information is used by the vehicle computer for location and direction. In addition, it has scanners on the track to read the bar code on the vehicle with vehicle identification. This information is fed to the master computer. The operation to get vehicle information is similar to the wayside control system in the present invention, but it does not make control decision.

Fifth, the vehicle in the present invention has a distance sensor. Nearly all automated transportation systems have such sensors for collision avoidance. In other systems, it is just a safety feature. In the present invention, it is also an operation feature. In the present invention, the vehicle position is not well defined except at certain wayside control points. The distance sensor is necessary for normal operation. The present invention does not need many location markers on the track, such as **175** at fixed locations **170** on the track in the teaching of Malewicki.

Sixth, the present invention provides a unique method of controlling the vehicle movement, as specified in **Claim 10**. In Malewicki patent, the controlling of the vehicle movement is done by two control systems: the vehicle control system and the central control system, or vehicle control and data processing computer (VCDPC) **130** and master control and data processing computer (MCDPC) **180** respectively. This scheme relies on many location markers along the track and heavy communication between the vehicle control system and the central control system. It may be costly and problematic for a relatively high speed or a large number of vehicles in a city. In the present invention, there are three control systems: the vehicle control system, the central control system, and a wayside control system at critical control points before merging and diverging tracks. The control does not need location markers densely arranged on the track. It reduces the communication demand in the network. The control system is better error-tolerant.

In the Office Action, **Claim 6** is rejected under 35 U.S.C. 103 (a) as being unpatentable over US Patent No. **5,108,052** to Malewicki et al.

Claim 6 provides automatic parking facilities, each having a plurality of **carriers** for moving said vehicles to a parking position, and retracting said vehicles from a parking position.

As the examiner pointed out, Malewicki's teaching could suggest a parking facility. However, a parking facility with **carriers** to move vehicles is not obvious to one of ordinary skill in the art at the time of the present invention. The parking facility of the present invention has structural features (**carriers**) not taught by Malewicki. Functionally, they may be not equivalent in some circumstances. For example, it would be difficult to retract a specific vehicle in Malewicki's teaching.

On the other hand, automatic retrieval systems with a carrier have been widely used. Then, why is it not obvious to build a parking facility with carriers to move vehicles? The prior art transportation system was designed as a public transportation system, as suggested by the automated ticketing machines in Malewicki (Abstract). A passenger can take any vehicle in a public transportation system. An extra length of track can easily serve as a parking facility. There is no obvious need for a carrier to move vehicles around.

In the present invention, there are private vehicles and public vehicles. A private vehicle cannot be easily retrieved from a long line of vehicles. At this point, one would be motivated to make the parking facility easy to retrieve a private vehicle, such as a series of short parallel tracks for two vehicles similar to **Fig. 6C**. One may also be motivated to improve the vehicle for automated parking. Since the vehicle, unlike a book or a container, is already an automated vehicle that can move on its own, it does not have any obvious advantage to design another automated vehicle (**carrier**) to move this vehicle.

The advantages of a parking facility with carriers can only be seen when one consider the various needs of a parking facility. A family garage may need something inexpensive. An office building may need a high density. A large recreational center may need a high capacity and a high efficiency. Therefore, it

is better to make the **carrier** customized for each parking situation and keep the vehicle standard. For example, the carrier may be designed to move both vertically and horizontally in a high density parking facility.

The applicant would appreciate the kind consideration of the above explanations by the examiner.

Very respectfully,

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